

SEQUENCE LISTING

<110> Thompson, Penny J.
Sheppard, Paul O.

<120> Uses of Human Zven Antagonists

<130> 02-22

<150> 60/416,719

<151> 2002-10-07

<150> 60/416,718

<151> 2002-10-07

<150> 60/434,116

<151> 2002-12-16

<150> 60/433,918

<151> 2002-12-16

<150> to be determined

<151> 2003-10-03

<150> to be determined

<151> 2003-10-03

<160> 29

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1496

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (66)...(389)

<400> 1

cgcccttact cactataggg ctcgagcggc cgcccgggca ggtgccgccc agtcccgagg 60

gcgcc atg agg agc ctg tgc tgc gcc cca ctc ctg ctc ctc ttg ctg ctg 110

Met Arg Ser Leu Cys Cys Ala Pro Leu Leu Leu Leu Leu Leu Leu
1 5 10 15

ccg ccg ctg ctg ctc acg ccc cgc gct ggg gac gcc gcc gtg atc acc 158

Pro Pro Leu Leu Leu Thr Pro Arg Ala Gly Asp Ala Ala Val Ile Thr
20 25 30

ggg gct tgt gac aag gac tcc caa tgt ggt gga ggc atg tgc tgt gct 206

Gly Ala Cys Asp Lys Asp Ser Gln Cys Gly Gly Gly Met Cys Cys Ala
35 40 45

gtc agt atc tgg gtc aag agc ata agg att tgc aca cct atg ggc aaa 254

Val Ser Ile Trp Val Lys Ser Ile Arg Ile Cys Thr Pro Met Gly Lys
50 55 60

ctg gga gac agc tgc cat cca ctg act cgt aaa gtt cca ttt ttt ggg 302

```

Leu Gly Asp Ser Cys His Pro Leu Thr Arg Lys Val Pro Phe Phe Gly
 65              70              75

cgg agg atg cat cac act tgc cca tgt ctg cca ggc ttg gcc tgt tta      350
Arg Arg Met His His Thr Cys Pro Cys Leu Pro Gly Leu Ala Cys Leu
 80              85              90              95

cgg act tca ttt aac cga ttt att tgt tta gcc caa aag taatcgctct      399
Arg Thr Ser Phe Asn Arg Phe Ile Cys Leu Ala Gln Lys
          100              105

ggagtagaaa ccaaatgtga atagccacat cttacctgta aagtcttact tgtgattgtg      459
ccaaacaaaa aatgtgccag aaagaaatgc tcttgcttcc tcaactttcc aagtaacatt      519
tttatctttg atttgtaaat gatttttttt ttttttttta tcgaaagaga attttacttt      579
tggaatagaaa tatgaagtgt aaggcattat ggaactgggt cttatttccc tgttttgtgt      639
ttggtttgat ttggcttttt tcttaaatgt caaaaacgta cccattttca caaaaatgag      699
gaaaataaga atttgatatt ttgttagaaa aacttttttt tttttttctc accaccccaa      759
gccccatttg tgccctgccg cacaaataca cctacagctt ttgggtccct gcctcttcca      819
cctcaaagaa tttcaaggct cttaccttac tttatttttg tccatttctc ttccctcctc      879
ttgcatttta aagtggagggt tttgtctctt tgagtttgat ggcagaatca ctgatgggaa      939
tccagctttt tgctggcatt taaatagtga aaagagtgtg tatgtgaact tgacactcca      999
aactcctgtc atggcacgga agctaggagt gctgctggac ccttcctaaa cctgtcactc     1059
aagaggactt cagctctgct gttgggctgg tgtgtggaca gaaggaatgg aaagccaaat     1119
taatttagtc cagatttcta ggtttgggtt tttctaaaaa taaaagatta catttacttc     1179
ttttactttt tataaagttt tttttcctta gtctcctact tagagatatt ctagaaaatg     1239
tcacttgaag aggaagtatt tattttaatc tggcacaaca ctaattacca tttttaaagc     1299
ggtattaagt tgtaatttaa accttgtttg taactgaaag gtcgattgta atggattgcc     1359
gtttgtacct gtatcagtat tgctgtgtaa aaattctgta tcagaataat aacagtactg     1419
tatatcattt gatttatttt aatattatat ccttattttt gtcaaaaaaa aaaaaaaaaa     1479
aaaaatatgc ggccgcg

```

```

<210> 2
<211> 108
<212> PRT
<213> Homo sapiens

```

```

<400> 2
Met Arg Ser Leu Cys Cys Ala Pro Leu Leu Leu Leu Leu Leu Leu Pro
 1              5              10              15
Pro Leu Leu Leu Thr Pro Arg Ala Gly Asp Ala Ala Val Ile Thr Gly
          20              25              30
Ala Cys Asp Lys Asp Ser Gln Cys Gly Gly Gly Met Cys Cys Ala Val
          35              40              45
Ser Ile Trp Val Lys Ser Ile Arg Ile Cys Thr Pro Met Gly Lys Leu
          50              55              60
Gly Asp Ser Cys His Pro Leu Thr Arg Lys Val Pro Phe Phe Gly Arg
          65              70              75              80
Arg Met His His Thr Cys Pro Cys Leu Pro Gly Leu Ala Cys Leu Arg
          85              90              95
Thr Ser Phe Asn Arg Phe Ile Cys Leu Ala Gln Lys
          100              105

```

```

<210> 3
<211> 324
<212> DNA
<213> Artificial Sequence

```

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<220>
<223> This degenerate sequence encodes the amino acid
       sequence of SEQ ID NO:2.

```

```

<221> misc_feature

```

<222> (1)...(324)

<223> n = A,T,C or G

<400> 3

atgmgnwsny	tntgytgygc	nccnytnytn	ytnytnytny	tnytnccncc	nytnytnytn	60
acnccnmng	cnggngaygc	ngcngtnath	acnggngcnt	gygayaarga	ywsncartgy	120
ggnggnggna	tgtgytgygc	ngtnwsnath	tgggtnaarw	snathmgnat	htgyacnccn	180
atgggnaary	tnggngayws	ntgycayccn	ytnacnmgna	argtnccntt	yttyggngmn	240
mgnatgcayc	ayacntgycc	ntgyytnccn	ggnytnngcnt	gyytnmgnac	nwsnttyaay	300
mgnttyatht	gyytnngcna	raar				324

<210> 4

<211> 1409

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (91)...(405)

<400> 4

tggcctcccc	agcttgccag	gcacaaggct	gagcgggagg	aagcgagagg	catctaagca	60
ggcagtgttt	tgccttcacc	ccaagtgacc	atg aga ggt gcc acg cga gtc tca			114
			Met Arg Gly Ala Thr Arg Val Ser			
			1 5			

atc atg ctc ctc cta gta act gtg tct gac tgt gct gtg atc aca ggg	162
Ile Met Leu Leu Leu Val Thr Val Ser Asp Cys Ala Val Ile Thr Gly	
10 15 20	

gcc tgt gag cgg gat gtc cag tgt ggg gca ggc acc tgc tgt gcc atc	210
Ala Cys Glu Arg Asp Val Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile	
25 30 35 40	

agc ctg tgg ctt cga ggg ctg cgg atg tgc acc ccg ctg ggg cgg gaa	258
Ser Leu Trp Leu Arg Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu	
45 50 55	

ggc gag gag tgc cac ccc ggc agc cac aag gtc ccc ttc ttc agg aaa	306
Gly Glu Glu Cys His Pro Gly Ser His Lys Val Pro Phe Phe Arg Lys	
60 65 70	

cgc aag cac cac acc tgt cct tgc ttg ccc aac ctg ctg tgc tcc agg	354
Arg Lys His His Thr Cys Pro Cys Leu Pro Asn Leu Leu Cys Ser Arg	
75 80 85	

ttc ccg gac ggc agg tac cgc tgc tcc atg gac ttg aag aac atc aat	402
Phe Pro Asp Gly Arg Tyr Arg Cys Ser Met Asp Leu Lys Asn Ile Asn	
90 95 100	

ttt taggcgcttg cctggtctca ggataccac catccttttc ctgagcacag	455
Phe	
105	

cctggatttt	tatttctgcc	atgaaaccca	gtcccatga	ctctcccagt	ccctacactg	515
actaccctga	tctctcttgt	ctagtacgca	catatgcaca	caggcagaca	tacctcccat	575
catgacatgg	tccccaggct	ggcctgagga	tgtcacagct	tgaggctgtg	gtgtgaaagg	635
tggccagcct	ggttctcttc	cctgctcagg	ctgccagaga	ggtggtaaat	ggcagaaagg	695
acattcccc	tccccctccc	aggtgacctg	ctctcttttc	tgggccctgc	ccctctcccc	755
acatgtatcc	ctcggctctga	attagacatt	cctgggcaca	ggctcttggt	tgcattgctc	815
agagtcccag	gtcctggcct	gaccctcagg	cccttcacgt	gaggtctgtg	aggaccaatt	875
tgtgggtagt	tcattctccc	tcgattgggt	aactccttag	tttcagacca	cagactcaag	935

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attggctctt cccagagggc agcagacagt caccccaagg caggtgtagg gagcccaggg      995
aggccaatca gccccctgaa gactctgggc ccagtcagcc tgtgggcttgt ggcctgtgac    1055
ctgtgacctt ctgccagaat tgtcatgcct ctgaggcccc ctcttaccac actttaccag    1115
ttaaccactg aagcccccaa ttcccacagc ttttccatta aaatgcaaat ggtggtggtt    1175
caatctaata tgatattgac atattagaag gcaattaggg tgtttcctta aacaactcct    1235
ttccaaggat cagccctgag agcagggttg tgactttgag gagggcagtc ctctgtccag    1295
attgggggtg gagcaaggga cagggagcag ggcaggggct gaaaggggca ctgattcaga    1355
ccaggggagg aactacacac caacctgctg gctttagaat aaaagcacca actg          1409

```

```

<210> 5
<211> 105
<212> PRT
<213> Homo sapiens

```

```

<400> 5
Met Arg Gly Ala Thr Arg Val Ser Ile Met Leu Leu Leu Val Thr Val
 1           5           10           15
Ser Asp Cys Ala Val Ile Thr Gly Ala Cys Glu Arg Asp Val Gln Cys
 20          25          30
Gly Ala Gly Thr Cys Cys Ala Ile Ser Leu Trp Leu Arg Gly Leu Arg
 35          40          45
Met Cys Thr Pro Leu Gly Arg Glu Gly Glu Glu Cys His Pro Gly Ser
 50          55          60
His Lys Val Pro Phe Phe Arg Lys Arg Lys His His Thr Cys Pro Cys
 65          70          75          80
Leu Pro Asn Leu Leu Cys Ser Arg Phe Pro Asp Gly Arg Tyr Arg Cys
 85          90          95
Ser Met Asp Leu Lys Asn Ile Asn Phe
100          105

```

```

<210> 6
<211> 315
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> This degenerate sequence encodes the amino acid
sequence of SEQ ID NO:5.

```

```

<221> misc_feature
<222> (1)...(315)
<223> n = A,T,C or G

```

```

<400> 6
atgmngngng cnacnmngnt nwsnathatg ytnytnytng tnacngtnws ngaytgygcn      60
gtnathacng gngcntgyga rmngaygtn cartgyggng cnggnacntg ytgygcnath    120
wsnytntggy tnmngngnyt nmgnatgtgy acncnnytng gnmngngargg ngargartgy    180
cayccnggnw sncayaargt nccnttytty mgnaarmgna arcaycayac ntgyccntgy    240
ytncnaaayy tnynttgyws nmgnnttyccn gayggnmngnt aymngntgyws natggayytn    300
aaraayatha aytty                                     315

```

```

<210> 7
<211> 16
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Peptide linker.

```

```

<400> 7

```

Gly Gly Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1 5 10 15

<210> 8
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Motif.

<221> VARIANT
 <222> (8)...(8)
 <223> Xaa is Asp or Glu.

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa is Lys or Arg.

<221> VARIANT
 <222> (1)...(10)
 <223> Xaa = Any Amino Acid

<400> 8
 Ala Val Ile Thr Gly Ala Cys Xaa Xaa Asp
 1 5 10

<210> 9
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Motif.

<221> VARIANT
 <222> (4)...(4)
 <223> Xaa is Gly or Leu.

<221> VARIANT
 <222> (5)...(5)
 <223> Xaa is Ser or Thr.

<221> VARIANT
 <222> (6)...(6)
 <223> Xaa is His or Arg.

<221> VARIANT
 <222> (12)...(12)
 <223> Xaa is any amino acid.

<221> VARIANT
 <222> (13)...(13)
 <223> Xaa is Lys or Arg.

<221> VARIANT
 <222> (15)...(15)
 <223> Xaa is any amino acid.

<400> 9
 Cys His Pro Xaa Xaa Xaa Lys Val Pro Phe Phe Xaa Xaa Arg Xaa His
 1 5 10 15

His Thr Cys Pro Cys Leu Pro
20

<210> 10
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Glu-Glu tag

<400> 10
Glu Tyr Met Pro Met Glu
1 5

<210> 11
<211> 249
<212> DNA
<213> Homo sapiens

<400> 11
atggccgtga tcaccggggc ttgtgacaag gactcccaat gtggtggagg catgtgctgt 60
gctgtcagta tctgggtcaa gacataagg atttgcacac ctatgggcaa actgggagac 120
agctgccatc cactgactcg taaagttcca ttttttgggc ggaggatgca tcacacttgc 180
ccgtgtctgc caggcttggc ctgtttacgg acttcattta accgatttat ttgttttagcc 240
caaaagtaa 249

<210> 12
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer ZC40821

<400> 12
ctagaaataa ttttgttttaa cttaagaag gagatatata tatggccgtg atcaccgggg 60
cttgtgac 68

<210> 13
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer ZC40813

<400> 13
tctgtatcag gctgaaaatc ttatctcatc cgccaaaaca ttacttttgg gctaaacaaa 60
taaactcg 67

<210> 14
<211> 249
<212> DNA
<213> Artificial Sequence

<220>
<223> Codon optimized polynucleotide sequence for Zven1

<400> 14
atggctgtta ttaccggtgc ttgcgacaaa gactctcagt gtggtggtgg tatgtgctgc 60
gctgtttcta tctgggttaa atctatccgt atctgcactc ctatgggtaa actgggtgac 120

tcttgccatc cgctgactcg taaagttccg ttcttcgggc gtcgtatgca tcacacctgt 180
 ccgtgcctgc cgggtctggc ttgcctgcgt acctctttca accgtttcat ttgcctggct 240
 cagaagtaa 249

<210> 15
 <211> 79
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45,048

<400> 15
 agtcaatgga tgacaagaat cacccaactt acccatagga gtacaaattc tgatagactt 60
 aacccaaata gaaacagca 79

<210> 16
 <211> 77
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45049

<400> 16
 ttcttgatcat ccattgacta gaaagggtcc attctttggg agaaggatgc atcacacttg 60
 tccatgtttg ccagggtt 77

<210> 17
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45050

<400> 17
 ttacttttga gccaaacaaa tgaatctggt gaaagaagtt ctcaaacaag ccaaacctgg 60
 caaacatgga 70

<210> 18
 <211> 68
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45051

<400> 18
 attactgggtg cttgtgataa ggattctcaa tgtgggtggg gtatgtgttg tgctgtttct 60
 atttgggt 68

<210> 19
 <211> 65
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45052

<400> 19
 ttatcacaag caccagtaat aacagcagca tcaccgggtc ttggagtcaa caacaatggg 60

ggcaa

65

<210> 20
 <211> 59
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide primer ZC45053

<400> 20
 atgagatctt tgtgttgatgc tccattgttg ttgttggtgt tgttgccacc attgttggt 59

<210> 21
 <211> 1182
 <212> DNA
 <213> Homo sapiens

<400> 21
 atggagacca ccatgggggtt catggatgac aatgccacca acacttccac cagcttcctt 60
 tctgtgctca accctcatgg agcccatgcc acttccttcc cattcaactt cagctacagc 120
 gactatgata tgccttttga tgaagatgag gatgtgacca attccaggac gttctttgct 180
 gccaagattg tcattgggat ggccctgggtg ggcacatgc tgggtctgcgg cattggaaac 240
 ttcatcttta tcgctgccct ggtccgctac aagaaactgc gcaacctcac caacctgctc 300
 atcgccaacc tggccatctc tgacttcctg gtggccattg tctgctgccc ctttgagatg 360
 gactactatg tgggtgcgcca gctctcctgg gagcacggcc acgtcctgtg cacctctgtc 420
 aactacctgc gcaactgtctc tctctatgtc tccaccaatg ccctgctggc catcgccatt 480
 gacaggatgc tggctattgt ccatccgctg agaccacgga tgaagtgcc aacagccact 540
 ggccctgattg ccttggtgtg gacggtgtcc atcctgatcg ccatcccttc cgcctacttc 600
 accaccgaga cggtcctcgt cattgtcaag agccaggaaa agatcttctg cggccagatc 660
 tggcctgtgg accagcagct ctactacaag tcctacttcc tctttatctt tggcatagaa 720
 ttctgtgggccc cgttggtcac catgaccctg tgctatgcca ggatctcccg ggagctctgg 780
 ttcaaggcgg tccctggatt ccagacagag cagatccgca agaggctgcg ctgccgcagg 840
 aagacgggtcc tgggtgctcat gtgcatcctc accgcctacg tgctatgctg ggcgccttc 900
 tacggcttca ccatcgtgcg cgacttcttc cccaccgtgt ttgtgaagga gaagcactac 960
 ctcaactcct tctacatcgt cgagtgcac gccatgagca acagcatgat caacactctg 1020
 tgcttcgtga ccgtcaagaa cgacaccgtc aagtaattca aaaagatcat gttgtctcac 1080
 tgggaaggctt cttacaatgg cggtaagtcc agtgcagacc tggacctcaa gacaattggg 1140
 atgcctgccca ccgaagaggt ggactgcatc agactaaaat aa 1182

<210> 22
 <211> 1155
 <212> DNA
 <213> Homo sapiens

<400> 22
 atggcagccc agaatggaaa caccagtttc acacccaact ttaatccacc ccaagaccat 60
 gcctcctccc tctcctttaa cttcagttat ggtgattatg acctccctat ggatgaggat 120
 gaggacatga ccaagacccg gaccttcttc gcagccaaga tcgtcattgg cattgcactg 180
 gcaggcatca tgctggctcg cggcatcggt aactttgtct ttatcgctgc cctcaccgcg 240
 tataaagaagt tgcgcaacct caccaatctg ctcatggcca acctggccat ctccgacttc 300
 ctggtggcca tcatctgctg ccccttcgag atggactact acgtggtagc gcagctctcc 360
 tgggagcatg gccacgtgct ctgtgcctcc gtcaactacc tgcgcaccgt ctccctctac 420
 gtctccacca atgccttgct ggccattgcc attgacagat atctcgccat cgttcacccc 480
 ttgaaaccac ggatgaatta tcaaacggcc tccttcctga tcgccttggg ctggatgggtg 540
 tccattctca ttgccatccc atcggtttac tttgcaacag aaacggtcct ctttattgtc 600
 aagagccagg agaagatctt ctgtggccag atctggcctg tggatcagca gctctactac 660
 aagtcctact tcctcttcat ctttgggtgtc gagttcgtgg gccctgtggg caccatgacc 720
 ctgtgctatg ccaggatctc ccgggagctc tgggtcaagg cagtccttgg gttccagacg 780
 gagcagattc gcaagcggct gcgctgcgc aggaagacgg tcctgggtgt catgtgcatt 840
 ctacaggcct atgtgctgtg ctgggcaccc ttctacggtt tcaccatcgt tcgtgacttc 900
 ttccccactg tgttcgtgaa ggaaaagcac tacctcactg ccttctacgt ggtcagtggtc 960


```

atcgccatga gcaacagcat gatcaacacc gtgtgcttcg tgacgggtcaa gaacaacacc 1020
atgaagtact tcaagaagat gatgctgctg cactggcgtc cctcccagcg ggggagcaag 1080
tccagtgtcg accttgacct cagaaccaac ggggtgccca ccacagaaga ggtggactgt 1140
atcaggctga agtga                                     1155

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```

<210> 23
<211> 28
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Oligonucleotide primer ZC29463

```

```

<400> 23
ggaattcatg aggagcctgt gctgcgcc                                     28

```

```

<210> 24
<211> 31
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Oligonucleotide primer ZC29462

```

```

<400> 24
gctctagacc cttttgggct aaacaaataa a                                     31

```

```

<210> 25
<211> 348
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Expression sequence

```

```

<400> 25
atgaggagcc tgtgtgcgc cccactcctg ctcctcttgc tgctgccgcc gctgctgctc 60
acgccccgcg ctggggacgc cgccgtgatc accggggctt gtgacaagga ctcccaatgt 120
ggtggaggca tgtgtgtgct tgctcagtatc tgggtcaaga gcataaggat ttgcacacct 180
atgggcaaac tgggagacag ctgccatcca ctgactcgta aagttccatt ttttgggcgg 240
aggatgcac acacttgccc gtgtctgcca ggcttggcct gtttacggac ttcatttaac 300
cgatttatct gtttagccca aaagggtcta gaatacatgc cgatggac                 348

```

```

<210> 26
<211> 116
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Expression sequence with Gly linker and
      Glu-Glu-tag

```

```

<400> 26
Met Arg Ser Leu Cys Cys Ala Pro Leu Leu Leu Leu Leu Leu Leu Pro
 1           5           10           15
Pro Leu Leu Leu Thr Pro Arg Ala Gly Asp Ala Ala Val Ile Thr Gly
      20           25           30
Ala Cys Asp Lys Asp Ser Gln Cys Gly Gly Met Cys Cys Ala Val
      35           40           45

```

```

Ser Ile Trp Val Lys Ser Ile Arg Ile Cys Thr Pro Met Gly Lys Leu
 50          55          60
Gly Asp Ser Cys His Pro Leu Thr Arg Lys Val Pro Phe Phe Gly Arg
65          70          75          80
Arg Met His His Thr Cys Pro Cys Leu Pro Gly Leu Ala Cys Leu Arg
          85          90          95
Thr Ser Phe Asn Arg Phe Ile Cys Leu Ala Gln Lys Gly Leu Glu Tyr
          100          105          110
Met Pro Met Asp
          115

```

```

<210> 27
<211> 393
<212> PRT
<213> Homo sapiens

```

```

<400> 27
Met Glu Thr Thr Met Gly Phe Met Asp Asp Asn Ala Thr Asn Thr Ser
 1          5          10          15
Thr Ser Phe Leu Ser Val Leu Asn Pro His Gly Ala His Ala Thr Ser
          20          25          30
Phe Pro Phe Asn Phe Ser Tyr Ser Asp Tyr Asp Met Pro Leu Asp Glu
          35          40          45
Asp Glu Asp Val Thr Asn Ser Arg Thr Phe Phe Ala Ala Lys Ile Val
          50          55          60
Ile Gly Met Ala Leu Val Gly Ile Met Leu Val Cys Gly Ile Gly Asn
65          70          75          80
Phe Ile Phe Ile Ala Ala Leu Val Arg Tyr Lys Lys Leu Arg Asn Leu
          85          90          95
Thr Asn Leu Leu Ile Ala Asn Leu Ala Ile Ser Asp Phe Leu Val Ala
          100          105          110
Ile Val Cys Cys Pro Phe Glu Met Asp Tyr Tyr Val Val Arg Gln Leu
          115          120          125
Ser Trp Glu His Gly His Val Leu Cys Thr Ser Val Asn Tyr Leu Arg
          130          135          140
Thr Val Ser Leu Tyr Val Ser Thr Asn Ala Leu Leu Ala Ile Ala Ile
145          150          155          160
Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Pro Arg Met Lys Cys
          165          170          175
Gln Thr Ala Thr Gly Leu Ile Ala Leu Val Trp Thr Val Ser Ile Leu
          180          185          190
Ile Ala Ile Pro Ser Ala Tyr Phe Thr Thr Glu Thr Val Leu Val Ile
          195          200          205
Val Lys Ser Gln Glu Lys Ile Phe Cys Gly Gln Ile Trp Pro Val Asp
          210          215          220
Gln Gln Leu Tyr Tyr Lys Ser Tyr Phe Leu Phe Ile Phe Gly Ile Glu
225          230          235          240
Phe Val Gly Pro Val Val Thr Met Thr Leu Cys Tyr Ala Arg Ile Ser
          245          250          255
Arg Glu Leu Trp Phe Lys Ala Val Pro Gly Phe Gln Thr Glu Gln Ile
          260          265          270
Arg Lys Arg Leu Arg Cys Arg Arg Lys Thr Val Leu Val Leu Met Cys
          275          280          285
Ile Leu Thr Ala Tyr Val Leu Cys Trp Ala Pro Phe Tyr Gly Phe Thr
          290          295          300
Ile Val Arg Asp Phe Phe Pro Thr Val Phe Val Lys Glu Lys His Tyr
305          310          315          320
Leu Thr Ala Phe Tyr Ile Val Glu Cys Ile Ala Met Ser Asn Ser Met
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Ile Asn Thr Leu Cys Phe Val Thr Val Lys Asn Asp Thr Val Lys Tyr
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[illegible]

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Pro	Gln	Asp	His 20	Ala	Ser	Ser	Leu	Ser 25	Phe	Asn	Phe	Ser	Tyr 30	Gly	Asp
Tyr	Asp	Leu 35	Pro	Met	Asp	Glu	Asp 40	Glu	Asp	Met	Thr	Lys 45	Thr	Arg	Thr
Phe	Phe 50	Ala	Ala	Lys	Ile	Val 55	Ile	Gly	Ile	Ala	Leu 60	Ala	Gly	Ile	Met
Leu 65	Val	Cys	Gly	Ile	Gly 70	Asn	Phe	Val	Phe 75	Ile	Ala	Ala	Leu	Thr	Arg
Tyr	Lys	Lys	Leu	Arg 85	Asn	Leu	Thr	Asn	Leu 90	Leu	Ile	Ala	Asn	Leu 95	Ala
Ile	Ser	Asp	Phe 100	Leu	Val	Ala	Ile	Ile 105	Cys	Cys	Pro	Phe	Glu 110	Met	Asp
Tyr	Tyr	Val 115	Val	Arg	Gln	Leu	Ser 120	Trp	Glu	His	Gly	His 125	Val	Leu	Cys
Ala	Ser	Val 130	Asn	Tyr	Leu	Arg 135	Thr	Val	Ser	Leu	Tyr 140	Val	Ser	Thr	Asn
Ala 145	Leu	Leu	Ala	Ile	Ala 150	Ile	Asp	Arg	Tyr	Leu 155	Ala	Ile	Val	His	Pro 160
Leu	Lys	Pro	Arg	Met 165	Asn	Tyr	Gln	Thr	Ala 170	Ser	Phe	Leu	Ile	Ala 175	Leu
Val	Trp	Met	Val 180	Ser	Ile	Leu	Ile	Ala 185	Ile	Pro	Ser	Ala	Tyr 190	Phe	Ala
Thr	Glu	Thr 195	Val	Leu	Phe	Ile	Val 200	Lys	Ser	Gln	Glu	Lys 205	Ile	Phe	Cys
Gly	Gln	Ile	Trp	Pro	Val	Asp 215	Gln	Gln	Leu	Tyr	Tyr 220	Lys	Ser	Tyr	Phe
Leu 225	Phe	Ile	Phe	Gly	Val 230	Glu	Phe	Val	Gly	Pro 235	Val	Val	Thr	Met	Thr 240
Leu	Cys	Tyr	Ala	Arg 245	Ile	Ser	Arg	Glu	Leu 250	Trp	Phe	Lys	Ala	Val 255	Pro
Gly	Phe	Gln	Thr 260	Glu	Gln	Ile	Arg	Lys 265	Arg	Leu	Arg	Cys	Arg 270	Arg	Lys
Thr	Val	Leu 275	Val	Leu	Met	Cys	Ile 280	Leu	Thr	Ala	Tyr	Val 285	Leu	Cys	Trp
Ala	Pro 290	Phe	Tyr	Gly	Phe	Thr 295	Ile	Val	Arg	Asp	Phe 300	Phe	Pro	Thr	Val
Phe 305	Val	Lys	Glu	Lys	His 310	Tyr	Leu	Thr	Ala	Phe 315	Tyr	Val	Val	Glu	Cys 320
Ile	Ala	Met	Ser	Asn 325	Ser	Met	Ile	Asn	Thr 330	Val	Cys	Phe	Val	Thr 335	Val
Lys	Asn	Asn	Thr 340	Met	Lys	Tyr	Phe	Lys 345	Lys	Met	Met	Leu	Leu 350	His	Trp
Arg	Pro	Ser 355	Gln	Arg	Gly	Ser	Lys 360	Ser	Ser	Ala	Asp	Leu 365	Asp	Leu	Arg
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 35 40 45
 Ser Ile Trp Val Lys Ser Ile Arg Ile Cys Thr Pro Met Gly Lys Leu
 50 55 60
 Gly Asp Ser Cys His Pro Leu Thr Arg Lys Asn Asn Phe Gly Asn Gly
 65 70 75 80
 Arg Gln Glu Arg Arg Lys Arg Lys Arg Ser Lys Arg Lys Lys Glu Val
 85 90 95
 Pro Phe Phe Gly Arg Arg Met His His Thr Cys Pro Cys Leu Pro Gly
 100 105 110
 Leu Ala Cys Leu Arg Thr Ser Phe Asn Arg Phe Ile Cys Leu Ala Gln
 115 120 125
 Lys